

**Commonwealth of Kentucky
Division for Air Quality**

PERMIT APPLICATION SUMMARY FORM

Completed by: Siew Nong Lim & Aaron Newton

GENERAL INFORMATION:

Name: Trace Die Cast, Incorporated
Address: 140 North Graham Avenue, Bowling Green, Kentucky 42101
Date application received: January 11, 2001
SIC/Source description: 3363 / Aluminum die casting
AFS Plant ID: 21-227-00085
Application log number: 53498
Permit number: V-01-006

APPLICATION TYPE/PERMIT ACTIVITY:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Initial issuance | <input type="checkbox"/> General permit |
| <input type="checkbox"/> Permit modification | <input type="checkbox"/> Conditional major |
| __Administrative | <input checked="" type="checkbox"/> Title V |
| __Minor | <input type="checkbox"/> Synthetic minor |
| __Significant | <input type="checkbox"/> Operating |
| <input type="checkbox"/> Permit renewal | <input checked="" type="checkbox"/> Construction/operating |

COMPLIANCE SUMMARY:

- | | |
|---|---|
| <input type="checkbox"/> Source is out of compliance | <input type="checkbox"/> Compliance schedule included |
| <input checked="" type="checkbox"/> Compliance certification signed | |

APPLICABLE REQUIREMENTS LIST:

- | | | |
|--|---|--------------------------------|
| <input checked="" type="checkbox"/> NSR | <input type="checkbox"/> NSPS | <input type="checkbox"/> SIP |
| <input type="checkbox"/> PSD | <input type="checkbox"/> NESHAPS | <input type="checkbox"/> Other |
| <input type="checkbox"/> Netted out of PSD/NSR | <input type="checkbox"/> Not major modification per 401 KAR 51:017, 1(23)(b) or 51:052,1(14)(b) | |

MISCELLANEOUS:

- ☐ Acid rain source
- ☐ Source subject to 112(r)
- ☐ Source applied for federally enforceable emissions cap
- ☐ Source provided terms for alternative operating scenarios
- ☐ Source subject to a MACT standard
- ☐ Source requested case-by-case 112(g) or (j) determination
- ☐ Application proposes new control technology
- ☒ Certified by responsible official
- ☒ Diagrams or drawings included
- ☐ Confidential business information (CBI) submitted in application
- ☐ Pollution Prevention Measures
- ☐ Area is non-attainment (list pollutants):

EMISSIONS SUMMARY:

| Pollutant | Potential to Emit (TPY) |
|------------------|--------------------------------|
| PM | 68.19 |
| PM10 | 66.48 |
| Chromium | 2.076 |
| Lead | 0.017 |
| Manganese | 0.834 |
| Nickel | 0.519 |
| HCl | 5.006 |
| HF | 2.725 |
| CO | 25.2 |
| NO ₂ | 30 |
| SO ₂ | 0.18 |
| VOC | 153.86 |
| THC | 155.53 |
| Ethylene glycols | 5.177 |

SOURCE PROCESS DESCRIPTION:

Trace Die Cast, Inc. melts aluminum ingots before casting them into aluminum parts. Clean aluminum ingots are preheated in a 0.35-mmbtu/hour, natural gas-fired pre-heater before charging them into 6 reverberatory melt furnaces, emission points 101(CF1)-106(CF6). The furnaces are natural gas-fired and have a total melting rate of 13 tons/hour of aluminum ingots. Both emission points 101(CF1) and 102(CF2) have a maximum continuous rating of 8.0 mmbtu/hour each while emission point 103(CF3) is 6.0 mmbtu/hour and 104(CF4), 105(CF5) and 106(CF6) are 10.0 mmbtu/hour. The molten aluminum is fluxed with chloride and fluoride based flux salts. Aluminum dross formed is sent off site for metal recovery. The melted and fluxed aluminum is then transferred to 38 holding furnaces, emission points 201(HF1)-216(HF16), 221(HF21)-225(HF25), 230(HF30)-236(HF36), 241(HF41)-245(HF45), and 251(HF51)-255(HF55) where it is fluxed again using chloride and fluoride based flux salts. The holding furnaces have a maximum holding rate of about 17 tons/hour. Each holding furnace, except for 230(HF30)-233(HF33), has a maximum continuous rating of 0.25 mmbtu/hour. Emission points 230(HF30)-233(HF33) each has a rating of 0.33 mmbtu/hour. Subsequently, the molten aluminum from the holding furnaces is cast into aluminum parts in 38 corresponding die cast machines, emission points 301(DCM1)-316(DCM16), 321(DCM21)-325(DCM25), 330(DCM30)-336(DCM36), 241(DCM41)-245(DCM45), and 251(DCM51)-255(DCM55). Five different casting lubricants, grease, and oil are used in the die cast machines along with water. The aluminum castings are then trimmed by a hydraulic press before they are polished by steel shots in 3 shot blast machines, emission points 501(SB1)-504(SB4), which have a total rate of 6.75 tons/hour of aluminum castings. The effluent water from the die cast machines are evaporated in 6 evaporators, emission points 401(Evap1)-406(Evap6), to separate the oils from the water. The trimmed and shot blasted aluminum scrap is collected and sent back to the melt furnaces to be re-melted. Spent steel shots are collected and disposed of in landfill.

EMISSION AND OPERATING CAPS DESCRIPTION:

The following is a summary of emission caps for emission points subject to 401 KAR 59:010:

| Emission Points | Pollutants | Emission caps (Per Emission Point) |
|------------------------|------------------------|---|
| 101(CF1) | Particulate Opacity | 5.52 lbs/hour, 24.17 TPY |
| 102(CF2) | | 20% |
| 103(CF3) | | 4.62 lbs/hour, 20.22 TPY |
| 104(CF4) | | 20% |
| 105(CF5) | | 6.34 lbs/hour, 27.75 TPY |
| 106(CF6) | | 20% |
| 501(SB1) | | 2.34 lbs/hour, 10.25 TPY |
| 502(SB2) | | 20% |
| 503(SB3) | | 20% |
| 504(SB4) | | 13.39 lbs/hr, 58.67 TPY |
| | | 20% |

The operating limitation for the melt furnaces is that only clean aluminum ingots shall be melted. The evaporators are subject to the operating standards given in 401 KAR 59:095.

OPERATIONAL FLEXIBILITY:

None